WHAT IS CLAIMED IS:

1. An exposure apparatus comprising:

a chamber which incorporates an optical element and surrounds a predetermined region;

a closed vessel which surrounds said chamber; and

a pump for reducing an internal pressure of said chamber,

wherein a pressure of said closed vessel is also reduced when the internal pressure of said chamber is reduced.

2. The apparatus according to claim 1, wherein said chamber is supported by said closed vessel.

3. The apparatus according to claim 1, further comprising a displacement mechanism for generating a displacement between said chamber and said closed vessel.

4. The apparatus according to claim 1, further comprising a measurement device for measuring a positional relationship between a reference member and said chamber.

5. The apparatus according to claim 1, wherein a positional relationship between a reference member and said chamber is measured, and a displacement mechanism is controlled based on a measurement result.

6. The apparatus according to claim 1, wherein said chamber is supported by a surface plate which supports a lens barrel that holds the optical member.

7. The apparatus according to claim 6, wherein said closed vessel is coupled to the surface plate via a movable displacement adjusting member.

8. The apparatus according to claim 7, wherein said movable displacement adjusting member includes a bellows.

9. The apparatus according to claim 1, wherein said closed vessel has a transmission window for transmitting light.

10. The apparatus according to claim 9, wherein the transmission window is formed from fluoride glass.

11. The apparatus according to claim 9, wherein the transmission window is supported movably with respect to said closed vessel.

12. The apparatus according to claim 1, wherein said closed vessel has an opening/closing door.

13. The apparatus according to claim 1, further comprising a vent hole for allowing said chamber and said closed vessel to communicate with each other.

14. The apparatus according to claim 13, wherein the vent hole is freely opened/closed.

15. The apparatus according to claim 1, wherein said pump discharges gas from said closed vessel.

16. The apparatus according to claim 15, wherein said pump discharges gas from said closed vessel to discharge gas from said chamber via a vent hole formed in said chamber.

17. The apparatus according to claim 1, wherein said pump discharges gas from said chamber.

18. The apparatus according to claim 1, wherein said chamber incorporates at least some of optical elements of an illumination optical unit.

19. The apparatus according to claim 1, wherein said chamber incorporates at least some of optical elements of a projection optical unit.

20. The apparatus according to claim 1, wherein inert gas is supplied after the internal pressure of said chamber is reduced.

21. The apparatus according to claim 20, wherein the inert gas includes at least one of helium and nitrogen.

22. The apparatus according to claim 1, wherein the internal pressure of said chamber is reduced a plurality of number of times.

23. The apparatus according to claim 1, wherein said chamber has a gas supply port and a gas discharge port.

24. The apparatus according to claim 1, wherein said chamber surrounds at least part of an optical path of light in a vacuum ultraviolet region.

25. An exposure apparatus comprising:

a chamber which incorporates an optical element and surrounds a predetermined region;

a mechanism for setting an inert gas atmosphere in said chamber; and

a closed vessel which surrounds said chamber,

wherein a purity of inert gas in said chamber is higher than a purity of inert gas in said closed vessel.

26. The apparatus according to claim 25, wherein the purity of the inert gas in said closed vessel is higher than a purity of inert gas outside said closed vessel.

27. The apparatus according to claim 25, wherein said mechanism discharges gas from said chamber before setting the inert gas atmosphere in said chamber.

28. The apparatus according to claim 25, wherein said closed vessel has a transmission window for transmitting light.

29. The apparatus according to claim 28, wherein the transmission window is formed from fluoride glass.

30. The apparatus according to claim 25, wherein said closed vessel has an opening/closing door.

31. The apparatus according to claim 25, further comprising a vent hole for allowing said chamber and said closed vessel to communicate with each other.

32. The apparatus according to claim 28, wherein a vent hole is freely opened/closed.

33. The apparatus according to claim 25, wherein said chamber incorporates at least some of optical elements of an illumination optical unit.

34. The apparatus according to claim 25, wherein said chamber incorporates at least some of optical elements of a projection optical unit.

35. The apparatus according to claim 25, wherein the

inert gas contains at least one of helium and nitrogen.

36. The apparatus according to claim 25, wherein said chamber surrounds at least part of an optical path of light in a vacuum ultraviolet region.

37. An exposure apparatus comprising:

a chamber which incorporates an optical element and surrounds a predetermined region;

a mechanism for setting an inert gas atmosphere in said chamber; and

a closed vessel which surrounds said chamber,

wherein an internal pressure of said chamber is higher than an internal pressure of said closed vessel.

38. The apparatus according to claim 37, wherein a pressure of inert gas in said closed vessel is higher than a pressure of inert gas outside said closed vessel.

39. The apparatus according to claim 37, wherein said mechanism discharges gas from said chamber before setting the inert gas atmosphere in said chamber.

40. The apparatus according to claim 37, wherein said closed vessel has a transmission window for transmitting light.

41. The apparatus according to claim 40, wherein the transmission window is formed from fluoride glass.

42. The apparatus according to claim 37, wherein said closed vessel has an opening/closing door.

43. The apparatus according to claim 37, further comprising a vent hole for allowing said chamber and

said closed vessel to communicate with each other.

44. The apparatus according to claim 43, wherein the vent hole is freely opened/closed.

45. The apparatus according to claim 37, wherein said chamber incorporates at least some of optical elements of an illumination optical unit.

46. The apparatus according to claim 37, wherein said chamber incorporates at least some of optical elements of a projection optical unit.

47. The apparatus according to claim 37, wherein the inert gas includes at least one of helium and nitrogen.

48. The apparatus according to claim 37, wherein said chamber surrounds at least part of an optical path of light in a vacuum ultraviolet region.

49. A gas replacement method comprising the steps of:

reducing an internal pressure of a chamber which incorporates an optical element;

reducing a pressure of a closed vessel which surrounds the chamber; and

supplying inert gas into the chamber.

50. The method according to claim 49, wherein a displacement is generated between the chamber and the closed vessel.

51. The method according to claim 50, wherein a positional relationship between a reference member and the chamber is measured, and a displacement mechanism is controlled based on a measurement result.

52. The method according to claim 49, wherein a door attached to the closed vessel is opened/closed.

53. The method according to claim 49, wherein a vent hole formed in the chamber is opened/closed.

54. The method according to claim 49, wherein a pump discharges gas from the closed vessel.

55. The method according to claim 54, wherein the pump discharges gas from the closed vessel to discharge gas from the chamber via a vent hole formed in the chamber.

56. The method according to claim 49, wherein a pump discharges gas from the chamber.

57. The method according to claim 49, wherein the inert gas is supplied after the internal pressure of the chamber is reduced.

58. The method according to claim 57, wherein the inert gas includes at least one of helium and nitrogen.

59. The method according to claim 49, wherein the internal pressure of the chamber is reduced a plurality of number of times.

60. A gas replacement method comprising the steps of:

supplying inert gas into a chamber which incorporates an optical element;

supplying inert gas into a closed vessel which surrounds the chamber; and

controlling a purity of the inert gas in the chamber to be higher than a purity of the inert gas in

the closed vessel.

61. The method according to claim 60, further comprising the step of controlling the purity of the inert gas in the closed vessel to be higher than a purity of inert gas outside the closed vessel.

62. A gas replacement method comprising the steps of:

supplying inert gas into a chamber which incorporates an optical element;

supplying inert gas into a closed vessel which surrounds the chamber; and

controlling a pressure of the inert gas in the chamber to be higher than a pressure of the inert gas in the closed vessel.

63. The method according to claim 62, further comprising the step of controlling the pressure of the inert gas in the closed vessel to be higher than a pressure of inert gas outside the closed vessel.

64. A semiconductor device manufacturing method comprising the steps of:

installing manufacturing apparatuses for various processes including the exposure apparatus defined in claim 1 in a semiconductor manufacturing factory; and

manufacturing a semiconductor device in a plurality of processes by using the manufacturing apparatuses.

65. The method according to claim 64, further comprising the steps of:

connecting the manufacturing apparatuses by a local area network; and

communicating information about at least one of the manufacturing apparatuses between the local area network and an external network of the semiconductor manufacturing factory.

66. The method according to claim 65, wherein maintenance information of the manufacturing apparatus is acquired by data communication by accessing a database provided by a vendor or user of the exposure apparatus via the external network, or production is managed by data communication via the external network with a semiconductor manufacturing factory other than the semiconductor manufacturing factory.

67. A semiconductor manufacturing factory comprising:

manufacturing apparatuses for various processes including the exposure apparatus defined in claim 1;

a local area network for connecting said manufacturing apparatuses; and

a gateway for allowing the local area network to access an external network of said factory,

wherein information about at least one of said manufacturing apparatuses is communicated by connection to the external network.

68. A maintenance method for the exposure apparatus defined in claim 1 that is installed in a semiconductor manufacturing factory, comprising the steps of:

causing a vendor or user of the exposure apparatus to provide a maintenance database connected to an external network of the semiconductor manufacturing factory;

authenticating access from the semiconductor manufacturing factory to the maintenance database via the external network; and

transmitting maintenance information accumulated in the maintenance database to the semiconductor manufacturing factory via the external network.

69. The apparatus according to claim 1, further comprising:

a display for displaying maintenance information;

a network interface for connecting to a database for managing the maintenance information; and

a computer for executing communication software for accessing the database on a network via said network interface and exchanging the maintenance information of the exposure apparatus.

70. The apparatus according to claim 69, wherein the communication software is connected to an external network of a factory where the exposure apparatus is installed, provides on said display a user interface for accessing a maintenance database provided by a vendor or user of the exposure apparatus, and enables obtaining information from the database via the external network.

71. An exposure apparatus comprising:

a chamber which incorporates an optical element and surrounds a predetermined region;

a closed vessel which surrounds said chamber; and

a pump for reducing an internal pressure of said chamber,

wherein said chamber is supported by a surface plate, and

said closed vessel is coupled to the surface plate via a movable displacement adjusting member for absorbing a displacement.

72. The apparatus according to claim 71, wherein the movable displacement adjusting member includes a bellows.

73. The apparatus according to claim 71, wherein the apparatus further comprises a second movable displacement adjusting member for adjusting deformation of said closed vessel, and

said second movable displacement adjusting member holds a transmission window, said transmission window is held at a predetermined positional relationship with respect to the internal optical elements in the chamber.

74. The apparatus according to claim 71, wherein said movable displacement adjusting member includes a bellows.

75. The apparatus according to claim 73, wherein said second movable displacement adjusting member includes a bellows.